

Appl. No. 10/088,752
Amdt. dated 9 May 2003
Reply to Office action of 11 Feb 2003

Attorney Docket No. 57.0357 US PCT

Page 7 of 9

REMARKS

Claims 1-25 were pending in this application prior to this amendment. Claims 1-25 were rejected in the Office Action dated 11 February 2003 (the "Office Action"). Applicants have amended claims 1, 4, 14, 16, 18 and 25, cancelled claims 3 and 23-24, and added claims 26-41 in order to more particularly and completely claim the present invention. No new matter has been introduced. Allowance of claims 1-2, 4-22 and 25-41 is respectfully requested.

In the Office Action, the examiner provisionally rejected claims 1 and 3-25 under the judicially created doctrine of obviousness-type double patenting a being unpatentable over claims 1-6, 8-26 of copending Application No. 10/088,723.

Applicant hereby commits to promptly file the necessary terminal disclaimer as soon as the other issues in this Application are resolved.

In the Office Action, the Examiner objected to claim 14, noting that it should be dependent on claim 12. Claim 14 has been amended according to the examiner's helpful suggestion.

In the Office Action, the Examiner rejected claims 1, 2 and 8 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,734,098 to Kraus et al. (hereinafter "Kraus"), and rejected claims 6 and 7 under 35 U.S.C. 103(a) as being unpatentable over Kraus.

Regarding claim 1, the limitation of original claim 3, namely that the acoustic device is adapted to operate in longitudinal mode has been added to claim 1. It is noted that claim 3 was only provisionally rejected under double patenting, and not rejected based on cited art. Thus it is believed that the examiner will find claim 1 patentable over the cited art.

Appl. No. 10/088,752
Amdt. dated 9 May 2003
Reply to Office action of 11 Feb 2003

Attorney Document No. 57.0357 US PCT

Page 8 of 9

The remaining rejected claims, claims 2, 6, 7 and 8 are all dependent directly or indirectly from claim 1 and therefore are believed to be patentable to for at least the same reasons as claim 1.

Claim 16 has been amended, and new claims 26-32 have been added to more clearly claim, among other embodiments, the embodiments associated with Figures 8, 9a and 9b. The support for these amendments and new claims are found in those figures and in the associated text. It is also noted that the original claim 16 was not rejected by the examiner based on cited art.

New claim 34 contains a limitation that by measuring the change in resonance frequency of the acoustic device a "thickness of deposited material of 600 microns can be distinguished from a thickness of deposited material of 1050 microns." This limitation is supported by Figure 3 and the associated text. In particular, on page 21, line 29 to page 22, line 2, the specification states "The resonant frequency of the 20 kHz transducer shifts by 85 Hz per millimeter of scale of density 4.5- g/cm³." In Figure 3, it can clearly be seen that the peak $h=0.60$ (600 microns thickness) can be distinguished from the peak $h=1.05$ (1050 microns thickness).

It is respectfully submitted that claim 34 is patentable over the cited art since there is no teaching or suggestion in the cited art of a device as claimed. In particular, the quartz crystal microbalance type devices taught by the cited art will not oscillate at the mass loadings in the range of that claimed in claim 34. The reason for this is the motional resistance of the quartz crystal microbalance, which increases with increased loading and reduces the Q (quality) factor of the resonance. When the Q factor has decreased below a critical value, the oscillator circuit is not able to detect the resonance and the quartz crystal microbalance will no longer oscillate. It is submitted that there is no teaching or suggestion in the cited art of any quartz crystal micro balance device which can distinguish thickness in the range of 600 microns from 1050 microns.

Appl. No. 10/088,752
Arndt. dated 9 May 2003
Reply to Office action of 11 Feb 2003

Attorney Doc No. 57.0357 US PCT

Page 9 of 9

In light of the above amendments and remarks, applicant believes that the present application and claims 1-2, 4-22 and 25-41 are in proper condition for allowance. Such allowance is earnestly requested. If the Examiner is contemplating any action other than allowance of all pending claims, the Examiner is urged to contact Applicant's representative, Mr. William Wang, in the United Kingdom at 011-44-1223-325268.

Respectfully submitted,



William L. Wang
Registration No.: 39,871

Schlumberger Doll Research Center
36 Old Quarry Road
Ridgefield, CT 06877-4108
Phone: 203 431 5506
Fax: 203 431 5640